Amendments to the Specification

Please replace paragraph [0004] with the following amended paragraph:

[0004] The bending stress in the fastener in FIG. 1A reduces the load carrying capacity of the fastener and joint. One side [[14]] 14a of the fastener shank 11 in the plane of bending has higher stress than the other side [[16]] 16a because of the induced bending. This is not a desirable condition because the stress distribution across the fastener shank causes high stress on side [[14]] 14a of the fastener shank 11. A more desirable stress condition at maximum loading would be to have a uniform stress distribution across the fastener shank 11 in the plane of bending at maximum loading conditions as illustrated in FIG. 1B, where the stresses 12, [[14]] 14b and [[16]] 16b are substantially equal. In some cases, fastened joints cannot be designed to eliminate bending stresses in the fastener under all conditions, such as in a connecting rod joint where the application load is dynamic and therefore changes.

Please replace paragraph [0005] with the following amended paragraph:

[0005] The load being carried by the fastener is related to the average stress in the fastener. In FIGS. 1A and 1B, both fasteners 10 have the same average stress 12 but the fastener in FIG. 1A has a higher maximum stress [[14]] 14a, as a result of the bending stress. If failure occurs it would occur at the point of highest stress along side [[14]] 14a. Thus, bending stress added to the axial stress reduces the load carrying capability of a fastener compared to a fastener subjected to the same average stress but with a uniform stress distribution.

Please replace paragraph [0006] with the following amended paragraph:

[0006] Referring to FIG. 2A, when fastening a joint, an initial axial pre-stress is applied as a result of tightening or tensioning the fastener 10. This is represented by the uniform pre-stress components 18. If the joint is non-symmetric, it will compress more on one side than the other side of the fastener hole. This causes the fastener shank 11 to be subjected to bending stresses and the load to be applied in a non-uniform fashion across the fastener shank 11. This is represented by the non-

uniform components [[20]] 20a, 20b, 20c. In addition, if the application load is applied off-center to the fastener centerline, additional bending will occur in the fastener. The stress components 12, [[14]] 14a and [[16]] 16a in FIG. 1A are the sum of the uniform components 18 and the non-uniform components [[20]] 20a, 20b, 20c at maximum application load. Fastener joint design is limited by the highest stress level in the fastener including the bending stress, which makes a uniform stress profile as illustrated in FIG. 1B a more desirable choice.

Please replace paragraph [0013] with the following amended paragraph:

[0013] In another way[[s]] of practicing the invention, a hole that extends in the parts and receives the fastener shank has a first portion in one of the parts and a second portion in the other part, with the first portion skewed relative to the second portion so as to induce bending stresses in the fastener opposite in direction to bending stresses induced by the maximum application load.

Please replace paragraph [0021] with the following amended paragraph:

[0021] FIG. [[3]] 4 is a view of a connecting rod bearing cap joint with an angled bolt seat according to the invention, the angle being exaggerated for illustrative purposes;

Please replace paragraph [0022] with the following amended paragraph:

[0022] FIG. [[4]] 3 is a view ~~like FIG. 3 but~~ of a typical prior art connecting rod bearing cap joint;

Please replace paragraph [0027] with the following amended paragraph:

[0027] Uniform stress distribution at maximum application loading can be accomplished in any number of ways. Currently, typical connecting rod bearing cap joints are made as illustrated in FIG. 3, with each bolt joint seat 36 oriented 90° to the corresponding bolt hole 37 and threaded hole 39 centerline 38, the unthreaded hole 37 being in the bearing cap 42 and the threaded hole 39 being in the connecting rod body 44. This yields a stress distribution substantially as in FIG. 2A, with the vectors 18 representing the static pre-stress and the vectors [[20]] 20a,

20b, 20c representing the dynamic application loading. Note that in this case, the maximum stress occurs on the inner side (toward the crankshaft bore 40 of both seats 36).

Please replace paragraph [0028] with the following amended paragraph:

[0028] One way to practice the present invention would be to skew each joint bolt seat 36 to the bolt hole 37 and threaded hole 39 centerline 38 by some small amount, chosen based on the maximum application loading that is to be cancelled or offset. Typically, the angle would be less than one degree, for example 0.125 degrees, depending on the magnitude of application loading. The angle must also be in the correct direction so that it cancels the bending stress at the maximum application (dynamic) loading condition, which is induced by the joint and application load. This is illustrated in FIG. [[3]] 4. Both seats [[36]] 36a, which are flat as illustrated, are machined or formed so as to both angle or skew inwardly in the direction of the plane of bending P, so as to induce bending stresses in each bolt 10 that are counter to the bending stresses induced by the application load. In other words, the bolts 10 tend to bow outwardly (convex-out relative to the axis of the main bore 40) in the plane of the paper as a result of the skewed seats [[36]] 36a, whereas the application load tends to bow the bolts 10 inwardly (convex-in relative to the axis of the main bore 40). The magnitude and direction of the angle of the seats 36 is chosen, and also the torque to which the bolts 10 are tightened is chosen, so as to produce a substantially uniform stress distribution in the shank 11 of the fastener 10 at the maximum application load, as illustrated in FIG. 2B.

Please replace paragraph [0029] with the following amended paragraph:

[0029] If in FIG. 4 the bolt hole 37, 39 and bolt-joint seat 36a are machined along the same spindle centerline 38, the seat 36a and bolt centerline 38 would be 90 degrees to each other by virtue of the manufacturing process, like the typical joint shown in FIG. 3. An additional or different process is needed to create the required bolt seat [[36]] 36a skewness. This could be done in many different ways. For example, the bolt seat [[36]] 36a skewness of FIG. 4 could be forged into the bearing cap [[42]] 42a. Another way would be to machine the bolt hole 37, 39 with

one spindle along axis 38 and machine the bolt seat 36a with another spindle at a small angle to the hole-drilling spindle. Yet another way would be to create the angle of the seats [[36]] 36a by using the powder metallurgy process to form the skewness of each bolt seat [[36]] 36a in the bearing cap [[42]] 42a.

Please replace paragraph [0030] with the following amended paragraph:

[0030] Another way to create a uniform stress across the bolt shank 11 in the plane of bending P at maximum application load is to make the joint faces, where they face each other near the center of the main bore [[40]] 40a, at a small angle to each other tapering outwardly so as to create a small unsupported gap 48 between each set of the joint faces in the area adjacent to the bore [[40]] 40a. This is illustrated in FIG. 5. One or both facing surfaces could be angled so as to create the gap 48. This small angle (greatly exaggerated in FIG. 5; may be less than one degree depending on the magnitude of the application load to be cancelled) could be machined on the faces, formed by forging or powder metallurgy, or the joint could be plastically deformed to create the gap 48, which latter method could be incorporated into an otherwise typical fracture splitting production process of a rod and cap of a connecting rod. This allows the cap [[42]] 42b to flex toward the rod member [[44]] 44a in the areas of the gaps 48 formed by the angles, which has the effect of subjecting the shanks 11 of the fasteners 10 to bending stresses so as to bow them outwardly. When the bolts 10 are tightened, the gap 48 may be closed or substantially closed, or not. The size of the gaps 48 and the torque to which the bolts 10 are tightened are chosen so as to produce a substantially uniform stress distribution in the shank 11 of the fastener 10 in the plane of bending P at the maximum application load, as illustrated in FIG. 2B.

Please replace paragraph [0031] with the following amended paragraph:

[0031] Yet another way to create a uniform stress in the plane of bending P across the bolt shank [[11]] 11a at maximum application load would be to create the ~~centerline~~ axis 38A of the threaded hole [[39]] 39a in the rod member 44b at a small angle to the bolt hole 37 and (unbent) bolt [[10]] 10a ~~centerline~~ axis 38B as illustrated in FIG. 6. Again, the angles of the axes 38A are greatly exaggerated and

may be less than one degree relative to the axes 38B in the bearing cap 42c. These bow the shanks [[11]] 11a of the bolts [[10]] 10a outwardly, as in the previously described embodiments, to yield a uniform stress distribution across the bolt shank 11a in the bending plane P at maximum application load, with a reduced cyclical mean stress and reduced maximum stress in the bolt shank [[11]] 11a. The angles of the axes 38A and the torque to which the bolts [[10]] 10a are tightened are chosen so as to produce a substantially uniform stress distribution in the bending plane P in the shank [[11]] 11a of the fastener [[10]] 10a at the maximum application load, as illustrated in FIG. 2B.